APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,498	01/05/2001	Michael Yip	2717P030	5235

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EXAMINER
WON, YOUNG N

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 05/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-24* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>05 January 2001</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1-24 have been examined.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Fig.1 ref. no.120. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites a method of itself. When looking for other claims claim 17 could depend on (in the case of a typing mistake), there was no prior claim (12-16) that mentioned, "modified MAC address learning rule".

United States Patent and Trademark Office   Young N. Won

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-5, 10-16, 18-20, and 23-24 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Crinion et al. (U.S. Pat.No.6181699 B1) in view of

Biedron (SPIE Proceedings Vol.2609 Paper No.2609-06).

As per claim 1, Crinion teaches of an aggregated virtual local area

network (VLAN) (see col.13 lines 25-31) architecture system comprising an edge

switch (see Abstract and col.4 lines 45-48) that applies a modified bridge

forwarding rule to exchange a VLAN ID (see col.3 line 33: or if a tag replacement

is desired, col.4 lines 14-18, and col.13 lines 25-31). Crinion also teach of a

super-VLAN comprising at least one of a plurality of sub-VLANs (see col.13 lines

25-31). Crinion does not teach that the system comprises a metropolitan area

network MAN having at least one of a router and a switch. Beidron teaches that

the system comprises a metropolitan area network MAN (see Title) having at

least one of a router and a switch. It would have been obvious to a person of

ordinary skill in the art, at the time the invention was made, to employ the

teaching of Biedron within the system of Crinion, by implementing a MAN

connected to a super-VLAN, because connection of one network to another is by

preference of necessity rather than an invention. There is no specific invention

involved with the addition of MAN. The super-VLAN can be in fact connected to any network so desired as needed or wanted such as LAN, MAN, WAN, or another super-VLAN. Similarly, a WAN may be comprised of any combination MAN, LAN, or even other WAN. Also, it is well known in the art that networks consist of a router, switch, hubs, or any bridging mechanism.

As per claim 2, Crinion further teaches wherein the edge switch further applies a modified bridge media access control (MAC) (see col.1 lines 12-15 and col.5 lines 26-27) address learning rule (see col.9 lines 66-67 and col.10 lines 1-2) to prevent the data packet from the sub-VLAN from being forwarded to a different sub-VLAN, the MAC address learning rule comprising a MAC address entry in a forwarding data base (FDB) (see col.2 lines 55-57, col.6 lines 4-9, and col.10 lines 2-4) for each of the plurality of sub-VLANs and the super-VLAN (see col.13 lines 26-28).

As per claims 3 and 4, Crinion further teaches wherein the MAC address entry is added to the FDB for the sub-VLAN and the super-VLAN when a new MAC address is learned from the sub-VLAN, and wherein the MAC address entry is added to the FDB for each of the plurality of sub-VLANs and the super-VLAN when the new MAC address is learned from the super-VLAN (see col.1 lines 19-22, col.2 lines 63-67 to col.3 lines 1-2, col.4 lines 36-39 & 42-44, col.5 lines 39-41, col.9 lines 66-67, and col.13 lines 40-44).

As per claim 5, Crinion further teaches wherein the edge switch applies the modified bridge forwarding rule to exchange a VLAN ID associated with the super-VLAN for a VLAN ID associated with the sub-VLAN before forwarding a

data packet from the super-VLAN to a customer associated with the sub-VLAN see col.3 lines 32-43: or if tag replacement is desired).

As per claims 10 and 11, Crinion further teaches wherein the VLAN ID associated with the sub-VLAN is obtained from an internal value stored in the edge switch, and wherein the VLAN ID associated with the super-VLAN is obtained from a second internal value stored in the edge switch (see col.3 line 33: or if a replacement tag is desired and col.13 lines 40-44). As far as the data stored that is associated with received data, it is only limited in number as far as the size of the memory itself and according to its functionality and purpose.

As per claims 12 and 18, Crinion teaches a method of aggregating multiple VLANs (see col.13 lines 25-31) and an article of manufacture comprising a machine-accessible medium having stored thereon a plurality of instructions for aggregating multiple VLANs (see col.10 line 61, col.12 lines 7, 15, 22, & 52, and col.13 lines 20, 22, & 23) comprises: classifying a data packet originating from a sub-VLAN in accordance with an aggregated VLAN configuration, the aggregated VLAN configuration associating the sub-VLAN with a sub-VLAN ID and a super-VLAN ID; exchanging the sub-VLAN ID for the super-VLAN ID before forwarding the data packet (see col.3 lines 30-35); classifying a data packet originating from a super-VLAN in accordance with the aggregated VLAN configuration, the aggregated VLAN configuration further associating the super-VLAN with a super-VLAN ID and at least one of a plurality of sub-VLAN IDs; exchanging the super-VLAN ID for the at least one sub-VLAN ID before forwarding the data packet to a customer associated with the at least one

sub-VLAN ID (see col.3 lines 30-35 and col.13 lines 25-31 & 40-44). Crinion

does not mention that the multiple VLANs are comprised within a MAN. Beidron

teaches that the multiple VLANs are comprised within a MAN (see Title). It

would have been obvious to a person of ordinary skill in the art, at the time the

invention was made, to employ the teaching of Biedron within the system of

Crinion, by implementing a MAN comprising of VLAN, because connection of one

network to another, or consisting or comprising within another is a preference of

necessity rather than an invention. There is no specific invention involved with

the addition of MAN. The plurality of VLANs can make up any network so

desired as needed or wanted such as LAN, MAN, WAN, or another VLAN.

As per claim 13, Crinion further teaches wherein the classification

comprises obtaining the sub-VLAN ID and the super-VLAN ID from a tag in the

data packet, and verifying the obtained VLAN IDs in accordance with the

aggregated VLAN configuration values stored in the switch that performs the

classification (see col.13 lines 40-44).

As per claim 14, Crinion further teaches wherein the tag is an 802.1 Q

frame tag (see col.2 lines 63-65).

As per claim 15, Crinion further teaches wherein the classification

comprises obtaining the sub-VLAN ID and the super-VLAN ID from the

aggregated VLAN configuration values stored in the switch that performs the

classification (see col. 13 lines 40-44).

As per claim 16, Crinion further teaches comprising: preventing the data

packet originating from the sub-VLAN from being forwarded to a different

sub-VLAN using a modified MAC address learning rule (see col.9 lines 66-67 and col.10 lines 1-2).

As per claim 19, Crinion teaches a method for controlling processing of data packets in a switch comprising: propagating a data packet originating from one of a plurality of sub-VLANs, the plurality of sub-VLANs belonging to a super-VLAN (see col.13 lines 25-31); exchanging a VLAN ID identifying the originating sub-VLAN with a super-VLAN ID identifying the super-VLAN to which the originating sub-VLAN belongs (see col.3 lines 30-35 and col.13 lines 40-44); controlling the processing of the data packet in accordance with the exchanged super-VLAN ID and a destination Media Access Control (MAC) (see col.1 lines 12-15 and col.5 lines 26-27) address specified in the data packet. Crinion does not teach about the switch connected metropolitan area network (MAN). Biedron teaches about a switch connected to a metropolitan area network MAN (see Title). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to employ the teaching of Biedron within the system of Crinion, by implementing a MAN connected to a multiple VLAN through a switch, because connection of one network to another is by preference of necessity rather than an invention. There is no specific invention involved with the addition of MAN. Also, it is well known in the art that all networks consist of a router, switch, hubs, or any bridging mechanism, thus a switch such as in the design of Crinion would be ideal to connect multiple VLAN to any other network.

As per claim 20, Crinion teaches of an edge switch for controlling processing of data packets comprising: a port (see Abstract: received at a port)

for receiving a data packet (see Abstract: frame) on an edge switch (see Abstract and col.4 lines 45-48) originating from one of a plurality of VLANs (see col.13 line 27: multiple VLANS, the plurality of VLANs associated with a super-VLAN (see col.13 lines 27-28: one of which would be a superset of the other); a means for assigning a VLAN ID to the data packet that identifies the originating VLAN (see col.1 lines45-46); a verifier means for verifying that the assigned VLAN ID matches a value in a memory of the edge switch (see col.5 lines 35-37); a controller for controlling the processing of the verified data packet to exchange the verified VLAN ID for a super-VLAN ID that identifies the associated super-VLAN (see col.3 lines 30-35 and col.13 line 37: Receive Side CAM); and a means for propagating the processed data packet (col.2 lines 50-51). Crinion does not teach that the edge switch for controlling processing in a MAN. Beidron teaches that the (see Title). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to employ the teaching of Biedron within the system of Crinion, by implementing a MAN comprising of a switch, because it is well known in the art that networks are connected to each other through a switch, router, hub or any other type of bridging mechanism otherwise intra-networking would not be possible.

As per claim 23, Crinion further teaches wherein the value in the memory of the edge switch is comprised of an aggregated VLAN configuration (see col.13 lines 40-45).

As per claim 24, Crinion further teaches an edge switch comprising a port (see Abstract: received at a port) for receiving the data packet from the

super-VLAN; a means for assigning a super-VLAN ID to the data packet that

identifies the originating super-VLAN (see Title); a means for verifying that the

assigned super-VLAN ID matches a second value in a memory of the edge

switch (see col.2 lines 55-57); the means for controlling the processing of the

verified data packet further including a means to exchange the verified

super-VLAN ID for a VLAN ID that identifies the destination VLAN (see col.3 lines

32-38 and col.13 lines 40-44); and the means for propagating the processed data

packet further including a means for propagating the data packet to a customer

associated with the destination VLAN (col.13 lines 46-47).

5.   Claims 6-9 and 22, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Crinion et al. (U.S. Pat.No.6181699 B1) and Biedron (SPIE

Proceedings Vol.2609 Paper No.2609-06) as applied to claims 1 and 5 above,

and further in view of Ross (U.S. Pat.No.5394402).

       As per claims 6, 8 and 22, Crinion and Biedron does not teach wherein the

VLAN ID associated with the sub-VLAN and the VLAN ID associated with the

super-VLAN is obtained from a header encapsulating the data packet. Ross

teaches of a header encapsulating a data packet (see col.10 lines 4-8). It would

have been obvious to a person of ordinary skill in the art, at the time the invention

was made, to employ the teachings of Ross within the system of Crinion and

Biedron, by encapsulating data packet in an aggregated VLAN architecture,

because this would allow for the switch to keep track of which sub-VLAN or

super-VLAN the data packet came from, restrict other devices from knowledge, and use it to check the database for classification and referencing.

As per claims 7 and 9, Crinion further teaches that the wherein the header encapsulating the data packet is an 802.1 Q frame tag (see col.1 lines 15-18, col.2 lines 63-65, and col.4 lines 1-3).

6.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crinion et al. (U.S. Pat.No.6181699 B1) and Biedron (SPIE Proceedings Vol.2609 Paper No.2609-06) as applied to claim 20 above, and further in view of Kinoshita (U.S. Pat.No.5802047). Crinion and Beidron teaches all the limitations of claim 21 except wherein the means for assigning the VLAN ID includes deriving the identity of the super-VLAN associated with the originating VLAN (see col. 13 lines 40-41) based on the contents of the data packet's source Internet Protocol (IP) address. Kinoshita teaches wherein the means for assigning the VLAN ID is based on the contents of the data packet's source Internet Protocol (IP) address (see col.1 lines 39-41). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to employ the teachings of Kinoshita within the system of Crinion and Biedron, by assigning VLAN ID based on IP address within the edge switch system, because IP address is a unique identifying number assigned to each machine in an Internet. Therefore since IP address is unique and VLAN ID must be unique, unwanted information hopping will be eliminated.
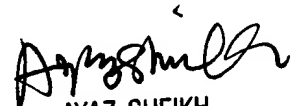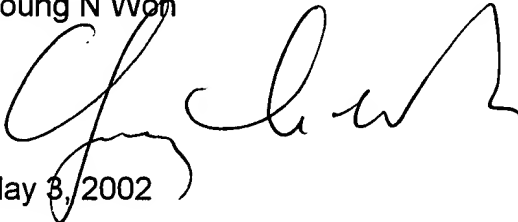
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Young N Won whose telephone number is 703-605-4241. The examiner can normally be reached on M-F: 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 703-305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3718 for regular communications and 703-305-5352 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Young N Won

May 3/2002

AYAZ SHEIKH
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